Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (Original). A magnetoresistance device comprising a substrate, a lower layer formed on the substrate, and a magnetoresistance structure formed on the lower layer,

wherein the lower layer is formed of amorphous Zr_xAl_{1-x} ($0<x<1$) or $Zr_xAl_{1-x}O_y$ ($0<x<1$, $0<y<1$).

Claim 2 (Original). The device of claim 1, further comprising an upper layer formed on the magnetoresistance structure, the upper layer formed of amorphous Zr_xAl_{1-x} ($0<x<1$) or $Zr_xAl_{1-x}O_y$ ($O<x<1$, $0<y<1$).

Claim 3 (Currently amended). The device of claim 1, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

a spacer layer formed on the first ferromagnetic layer, the spacer layer formed of an nonmagnetic material;

a second ferromagnetic layer formed on the spacer layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 4 (Currently amended). The device of claim 2, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

a spacer layer formed on the first ferromagnetic layer, the spacer layer formed of an nonmagnetic material;

a second ferromagnetic layer formed on the spacer layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 5 (Currently amended). The device of claim 1, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a spacer layer formed on the first ferromagnetic layer, the spacer layer formed of an nonmagnetic material; and

a second ferromagnetic layer formed on the spacer layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.

Claim 6 (Currently amended). The device of claim 2, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a spacer layer formed on the first ferromagnetic layer, the spacer layer formed of an nonmagnetic material; and

a second ferromagnetic layer formed on the spacer layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.

Claim 7 (Currently amended). The device of claim 1, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

a tunneling barrier layer formed on the first ferromagnetic layer;

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 8 (Currently amended). The device of claim 2, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

a tunneling barrier layer formed on the first ferromagnetic layer;

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 9 (Currently amended). The device of claim 1, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a tunneling barrier layer formed on the first ferromagnetic layer; and

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.

Claim 10 (Currently amended). The device of claim 2, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a tunneling barrier layer formed on the first ferromagnetic layer; and

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.

Claim 11 (Original). A magnetoresistance device comprising a substrate, a magnetoresistance structure formed on the substrate, and an upper layer formed on the magnetoresistance structure,

wherein the upper layer is formed of amorphous Zr_xAl_{1-x} ($0<x<1$) or $Zr_xAl_{1-x}O_y$ ($0<x<1$, $0<y<1$).

Claim 12 (Currently amended). The device of claim 11, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

a spacer layer formed on the first ferromagnetic layer, the spacer layer formed of an nonmagnetic material;

a second ferromagnetic layer formed on the spacer layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 13 (Currently amended). The device of claim 11, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a spacer layer formed on the first ferromagnetic layer, the spacer layer formed of an nonmagnetic material; and

a second ferromagnetic layer formed on the spacer layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.

Claim 14 (Currently amended). The device of claim 11, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

a tunneling barrier layer formed on the first ferromagnetic layer;

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 15 (Currently amended). The device of claim 11, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a tunneling barrier layer formed on the first ferromagnetic layer; and

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.

Claim 16 (Currently amended). A magnetoresistance device comprising a magnetoresistance structure formed of a fixed layer of which magnetization direction is fixed by a ~~semi-ferromagnetic~~ anti-ferromagnetic layer, a free layer of which magnetization direction is varied, and a tunneling barrier layer formed between the fixed layer and the free layer,

wherein the tunneling barrier layer is formed of at least one selected from the group consisting of ~~$Zr_xAl_{1-x}O_y$ $(0<x<1, 0<y<1)$,~~ $Ti_xAl_{1-x}O_y$ $(0<x<1, 0<y<1)$~~,~~ and $Nb_xAl_{1-x}O_y$ $(0<x<1, 0<y<1)$.

Claim 17 (Currently amended). The device of claim 16, wherein the magnetoresistance structure comprises:

a first ferromagnetic layer of which magnetization direction is varied by an applied magnetic field;

the tunneling barrier layer formed on the first ferromagnetic layer;

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is fixed; and

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer formed on the second ferromagnetic layer, the ~~semi-ferromagnetic~~ anti-ferromagnetic layer for fixing the magnetization direction of the second ferromagnetic layer.

Claim 18 (Currently amended). The device of claim 16, wherein the magnetoresistance structure comprises:

a ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

a first ferromagnetic layer formed on the ~~semi-ferromagnetic~~ anti-ferromagnetic layer, the first ferromagnetic layer of which magnetization direction is fixed by the ~~semi-ferromagnetic~~ anti-ferromagnetic layer;

the tunneling barrier layer formed on the first ferromagnetic layer; and

a second ferromagnetic layer formed on the tunneling barrier layer, the second ferromagnetic layer of which magnetization direction is varied by an applied magnetic field.